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Austrian Agriculture—Part I

by **F. S. STRAUS***

The first country to be overrun by the German armies, Austria suffered much during the war and from open warfare in its closing phase. It is cut into four parts by the armies of occupation (fig. 1). It is barred to a large degree from trade with the surrounding countries, on which its prewar economic life was strongly dependent. And it has been hit by two successive seasons of especially unfavorable climatic conditions.

Country and Population

Austria in its present boundaries is a country which emerged as one of the succession States of the former Austro-Hungarian monarchy under the Peace Treaty of St. Germain in September 1919 with the so-called Burgenland added in 1922. It has a total area of 32,373 square miles, which is somewhat larger than North Carolina (31,000 square miles) but smaller than Maine (33,000 square miles). If superimposed at its latitudinal position on the State of Maine, the northern part of the country would overlap into Canada, the southern part covering the north of Maine.

Its location is in the heart of Europe with no outlet to the sea. It borders on seven countries—Italy, Switzerland, Liechtenstein, Germany, Czechoslovakia, Hungary, and Yugoslavia—along a total boundary line of 1,639 miles (fig. 1). Pearlike in shape, it has a length of 360 miles and a width of only 183 miles. Its central position makes Austria an important transportation center for movement from east to west through the valley of the Danube and from north to south connecting Poland, Czechoslovakia, and Germany with Trieste.

Relative to its area, the country's population density is not high. In 1936 it had 6,760,000 inhabitants, or about 210 persons per square mile, compared with 381 for Germany, 710 Belgium (1937), 197 for France (1936), and 44 for the United States (1940). Of its working population, 32 percent were formerly employed in agriculture and forestry, according to the 1934 census. With the proportion of family members working being especially large among the farm population, the percentage of the population whose livelihood depended on agriculture and forestry, including those employed and temporarily unemployed as well as dependents, was only about 27 percent of the total population. In 1923 it was 30 percent.

A different picture, though, is obtained if the urban area of Vienna with its 1.9 million inhabitants is separated from the rest of the country. This capital was once the center of a country with a population of 50 million. If excluded from the statistics, the largely rural character of the remainder of Austria becomes strikingly evident. The employment in agriculture averaged then 45 percent of the total working population, ranging from 30 percent in Vorarlberg to over 60 percent in Burgenland. The share of the total population whose livelihood depended on agriculture (workers plus dependents) was about 37 percent.

Topography

Austria is an alpine country with three-fourths of its area in high elevations. The average height above sea level is roughly 3,000 feet. Of the total productive area, representing 89 percent of Austria's surface, only 2.6 percent is classified as lowland, 5.8 percent as plains, 18.4 percent as hilly land, and the remainder belongs to the mountainous region of higher altitudes.

The mountains are centrally located, with the lowlands on the fringes to the north, northeast, and south. Valleys cut through the mountain massif, the major ones in an east-westerly direction to divide the mountain block into three parts: A central zone consisting of primary rock, paralleled both to the north and south by a range of limestone mountains reaching 9,829 feet above sea level in the northern range (Dachstein) and 7,024 feet (Hochobir) in the southern range. Because of its abundant water supply, the archiac range forms the basis for some of the best alpine pastures. Thus, in spite of the high elevations, the total high mountain desert occupies only 12 percent of this

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*Office of Foreign Agricultural Relations.

This first article is intended to give the high lights of Austria's agriculture in the period just prior to World War II. As reconstruction is the complementary phase to the despoliation of the war, a second article will treat of the effect of World War II on the agricultural and food economy of Austria and will discuss the present situation, future planning, and potentialities.

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area. (See fig. 2.) In the limestone ranges the plateau is deficient in water because of the porosity of the rock. The valley bottoms have many springs. The mountain desert is more extensive despite the lesser altitude and amounts to about one-fifth to one-fourth of the total area.

At the foot of the mountains are hilly country and plains. The northern pre-Alpine country of Salzburg and Upper and Lower Austria forms the bridge into the Bohemian massif. From the agricultural point of view, the Danube Valley with its alluvial deposits is most important. The eastern plains are contiguous to the Hungarian lowland.

Climate

Three distinct climates characterize the country—the mid-European, the Alpine, and the Pannonian climate. The first, or mid-European climate, is predominant in the pre-Alpine area and the Bohemian massif reaching into many of the Alpine valleys up to the timber line. Precipitation varies from 28 to 79 inches. The number of frostless days lies between 185 and 200 in the sub-Alpine area. Average yearly temperatures range from 36° to 46° F., and the growing season varies from 4½ to 8½ months. Cherries begin to blossom between April 24 and 28 at the earliest and May 24 and 28 at the latest. In the highest altitudes of the central Alps in Salzburg and Tirol, winter rye is planted even before the old crop is harvested. Droughts are unknown. The major hazards are early and late frosts. Because of its high and rather evenly distributed precipitation, this area is one of the best for fodder production.

The second, or Alpine climate, prevails in the higher altitudes from 3,937 feet up and reaches into the highest peaks and ranges of the Alps. Yearly precipitation is mostly above 55 inches. The number of days with frost ranges between 200 and 260, which impairs the growth of plants. The length of the growing season is only 3 or 4 months. the hibernation period 8 or 9 months. Alpine plants are characterized by a special frost resistance and excessive dryness, which, in spite of high precipitation, is a common occurrence owing to thin soil cover. The average yearly temperature reported at 10 different mountain stations is 33° F. The highest areas of the Alps, still useful for agriculture, are utilized as mountain pastures. The very short growing season prevents the growth of trees.

The third, or continental (Pannonian), climate is encountered in the eastern outlets of the valleys and the eastern plain. An altitude of about 1,312 feet is not exceeded anywhere in this area. Days with frost number between 60 and 80. As in the mid-European climate a distinctive winter season is characteristic. Heat waves appear in June and July, and average yearly temperatures are mostly about 48° F. Crops ripen early; winter rye, for example, is ready for harvest between June 24 and July 1. A true Mediterranean climate is nonexistent, though southern Styria and Carinthia are on the border of that zone.

Soils

The soils of the mountains vary greatly both in depth and fertility, depending largely on the composition of the underlying rock. Most Alpine soils are generally not deep enough for crop production. The archaic mountain soils are always moist, owing to the impermeability of the primary rock; whereas those of the limestone mountains tend to dry out, especially in the eastern parts exposed to continental winds. Many alluvial accumulations of the valleys are wet, if not swampy, as for example in the valleys of the Enns, Salzach, upper Drau, and lower Gail. Where drainage conditions are good, soils of high fertility appear as in the Mur and Muerz Valleys, the plain of Graz, and the Klagenfurt Basin.

The plains with tertiary diluvial and alluvial deposits are of variable quality, depending upon the predominance of sand, gravel, loam, or clay. The hill country of eastern Styria and the Burgenland have more favorable soil conditions than do the northern pre-Alpine regions. Northern Burgenland participates in the black earth prevalent in the Hungarian plain. The Muehlviertel and Waldviertel in the north of the Danube have soils poor in humus and lime and frequently heavy and wet. Only in the Weinviertel are there light loesses and loams. The Vienna Basin is only of average fertility owing to its previous sandy and stony soils. Good soils are found in Vorarlberg, especially in the sector covered by the alluvial plain of the Rhine.

Land Use

The mountainous nature of Austria, its rugged climate, and its generally poor soils find expression

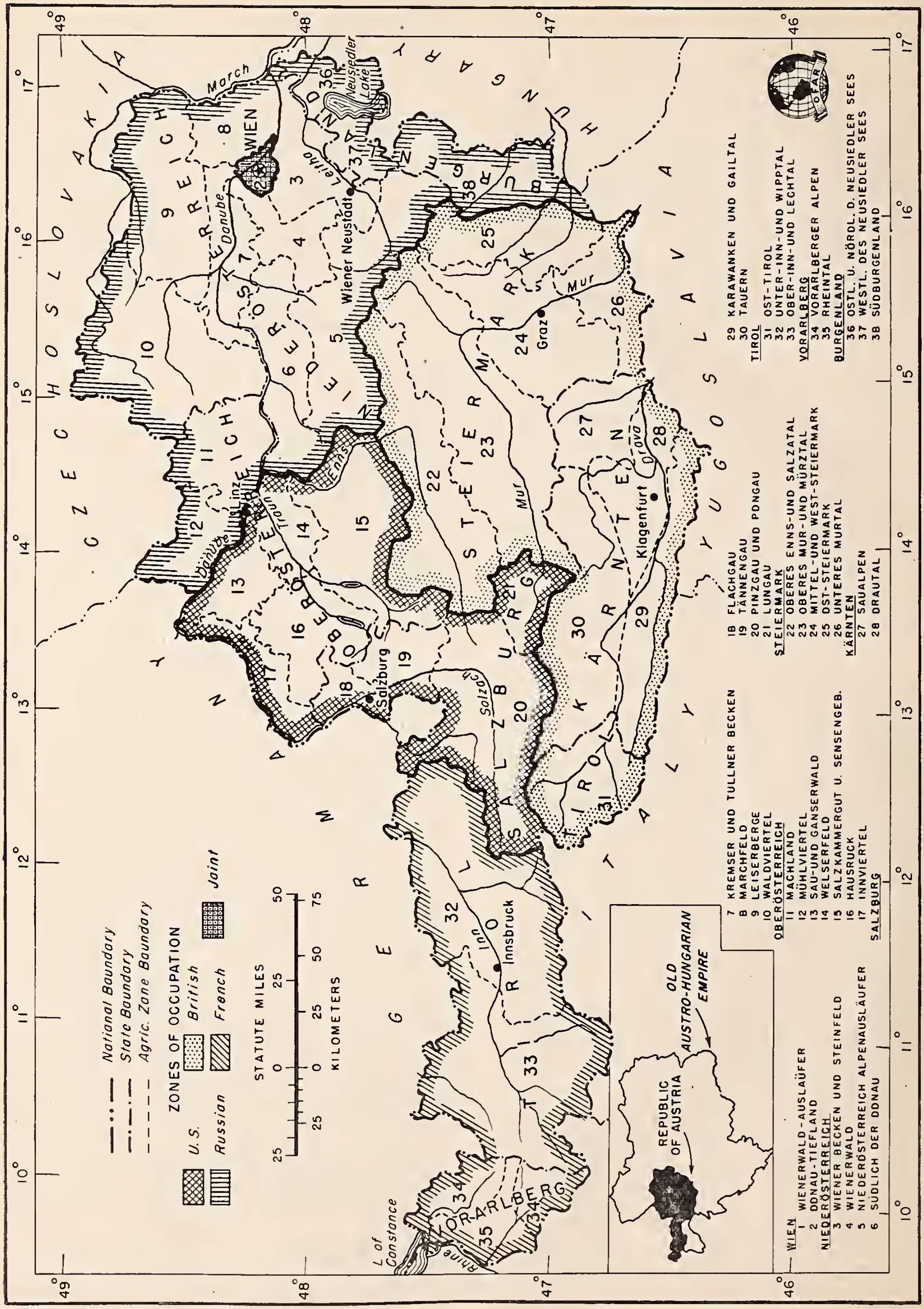

FIGURE 1.—Reference map of Austria, with occupation and agricultural zones indicated.

in its land use. Forests, covering about 37 percent of the total area, and meadows and pastures (27 percent) predominate; plowland (23 percent), gardens (1 percent), and vineyards (0.5 percent) occupy only one-fourth the land. The remaining area (11.5 percent) is unproductive.

Comparing Austria with its neighbor State, Hungary, impresses one, because of the strong contrast, with the peculiarities of the Austrian land-use features. While Austria is a mountainous country with characteristic predominance of forest and pasture land, Hungary is primarily an area of plowland (60 percent). In proportion to total area, Hungary has only one-third of Austria's share in forests; it is therefore deficient in lumber, and Austria has a surplus.

The relationship among the various broad categories of land use has changed little during the past 25 years. The only striking change occurred during World War I, when the area of meadows and pastures increased by about 10 percent at the expense of the plowland. By 1936, however, the relationship had returned to roughly the prewar basis. This is not surprising, since the distribution of land use is largely determined by invariable natural conditions but is little affected by the slowly modifying influences of agricultural policies and techniques. In fact, the natural conditions of the country are so rigid as to permit only minor variations in land use. The relationships can, to any larger extent, be changed only through costly projects of amelioration. The forests might possibly be pushed back somewhat, and some pastures might be put to use for field crops. These areas, however, are small. The possibility of larger areas of plowland being utilized as pastures—a shift which has taken place in some European countries, especially France—cannot be expected in Austria unless the possibilities of nonagricultural employment are increased.

The further break-down of the plowland into crop areas (table 1) shows that all the grains combined occupied roughly 60 percent of the total, or 3.0 million acres. The largest area was planted to rye (941,000 acres, average 1933–36), followed by oats (516,000 acres), wheat (586,000 acres), and barley (410,000 acres). Corn occupied only 158,000 acres. Relative to each other, the grains have changed little, except for the period after 1933, when the wheat area began to increase at the expense of rye, oats, and barley.

All but 6.6 percent of the wheat is fall-sown; there is a little summer rye (4.4 percent). Barley is a spring-sown crop; the area planted in the fall was 6.2 percent in 1936. Potatoes covered 10 percent of the plowed area and sugar beets 2.25 percent. These root crops expanded considerably after 1923, when their combined area was less than 9 percent of the total plowland. About 1.4 percent of the plowland is in early potatoes.

The remaining arable land is planted to fodder crops: Fodder beets 3.6 percent, red clover 7.3 percent, alfalfa 2.2 percent, esparsette 0.8 percent, other clovers 0.2 percent, clover grass 2.6 percent, and fodder mixtures 2.4 percent, *Egaerten*, a type of rather poorly managed meadows in rotation, 6.6 percent, green manure 0.1 percent, and fallow about 1 percent.

Oilseeds and fiber plants together accounted for less than 0.4 percent of the plowland. Flax, poppy, mustard, rape, and colza were each more important than hemp. The cultivation of tobacco and hops was negligible.

Intensification of agriculture has led to double-cropping an increased share of the plowland. This was accomplished by planting stubble crops, such as red clover, water beets, buckwheat, fodder grain, and green manure; through intertilling, for example, cabbages between rows of corn; and through secondary utilization of crops, for example, in letting the last cut of a fodder crop, alfalfa, clover, etc., go to seed. The latter two forms occupied two-tenths, the first eight-tenths of the double-cropped land. In percentage of total plowland, the area increased from 5.6 percent in 1922 to 9.1 percent in 1929 and reached 11.0 percent in 1936.

Natural Regions

In view of the great physiographic differences from section to section of Austria, the over-all land-use figures do not tell the whole story. A break-down by the nine States (Bundeslaender) shows arable land varying from over 50 percent of the total area in Burgenland in the eastern extreme of the country to 1.7 percent in Vorarlberg, Austria's western extreme. The inverse relationship was found in meadows and pastures, which accounted for 61 percent of the total surface in Vorarlberg, and only 14 percent in Burgenland. Disregarding Vienna, forests vary from 26 percent in Burgenland and Vorarlberg to 49 percent in

Styria. A striking change in unproductive area from 3.5 percent in Lower Austria to 25 percent in Tirol completes the picture.

Table 1.—*Acreage, production, and yield per acre of major crops in Austria, average 1933–36*

Crop	Crop area		Production	Yields
	Acres	*Percent*	*Short tons*	*Short tons per acre*
Wheat (including spelt)	585, 168	11.97	431, 076	0.74
Rye	941, 352	19. 25	648, 786	.69
Barley	409, 998	8. 39	324, 094	.79
Oats	737, 977	15. 09	492, 572	.67
Corn	158, 245	3. 24	162, 625	1. 03
Potatoes	505, 438	10. 34	2, 718, 670	5. 38
Sugar beets	109, 720	2. 24	1, 245, 064	11. 35
Pulses [1]	29, 449	.60	17, 035	.58
Field vegetables [1]	52, 286	1. 07	378, 864	7. 25
Other crops and fallow	1, 359, 552	27.81		
Total plowland	4, 889, 185	100.00		

[1] Also catch crops: 26,316 acres and 7,230 short tons for pulses, 34,826 acres and 168,532 acres for field vegetables.

STATISTIK DER ERNTE IM BUNDESSTAAT OESTERREICH 1933–36, Wien, 1934–37.

For purposes of the agricultural census, Austria has been divided into 38 zones of more or less uniform agriculture. (See fig. 1.) These zones lie within the boundaries of the various States and do not overlap them. To simplify the description to be given here, only three natural regions will be distinguished: (*a*) The Alpine Region, (*b*) the Waldviertel and Muehlviertel situated north of the Danube on the southern slope of the Bohemian forest, and (*c*) the Flat and Hilly Land to the north, east, and south on the Alpine fringes. The Alpine region lies within the areas now occupied by the United States, the United Kingdom, and France, and the other two regions lie mainly within the Soviet-occupied area. (See fig. 2.)

THE ALPINE REGION

The Alpine region, as defined here, covers 57 percent of the total Austrian area and has no less than 72 percent of the Austrian forests, a fact which emphasizes the overwhelming importance of forestry in this region. The exceedingly high share of the fodder area (45 percent), and especially of natural grassland (70 percent), indicates the second most important industry, livestock. The raising of animals for draft and breeding purposes (cattle and horses) and the production of feeder cattle find extremely favorable natural conditions. Milk production is largely for the manufacture of cheese, since the distance from the centers of consumption impedes the sale of fresh milk.

Field cultivation is restricted because of the lack of proper soil and difficult climatic conditions. Locally produced crops seldom suffice to supply even the farm population fully. In a few climatically favored valleys, however, potato output is in excess of farm needs.

WALDVIERTEL AND MUEHLVIERTEL

In this area, covering about 9 percent of the country, Upper and Lower Austria share in the relationship of 58 to 42 percent. Forestry and livestock are the major branches of agriculture. Animal raising in the narrower sense is, however, less important here than in the Alpine region, and feeder cattle and slaughter cattle predominate. In contrast to the Alpine region, cultivation of cash crops is important. Among the cereals, rye and oats are widely planted. An important place in the rotation is occupied by the potato, which produces satisfactory yields year after year. Its economic significance was raised through the erection of a number of agricultural distilleries in this area, which simultaneously opened up the possibilities of some cattle feeding on their waste material. Finally, mention should be made of the cultivation of oil and fiber plants, which are relatively most important in this agricultural zone.

FLAT AND HILLY LAND

This region comprises 34 percent of Austria's area, covering the whole of Burgenland, parts of Lower Austria, Upper Austria, the flatland of Salzburg, about 40 percent of Styria, 10 percent of Carinthia, and Vienna. Roughly 70 percent of Austria's grain production comes from this area. Interest in the grain market and in prices for wheat, barley, rye, and oats is therefore almost entirely restricted to the farmers of this region. Almost all the corn also is produced in this section (94 percent) but is consumed largely on the farm.

Austrian sugar-beet cultivation is entirely centered here. The expansion in sugar-beet growing and the construction of processing plants in Lower Austria, the Burgenland, and Upper Austria have gradually made it possible to supply all the sugar needs of the country's population. No less important is the potato. This region, together with the Waldviertel and Muehlviertel, supplies the whole of the internal market demand for potatoes, with the exception of some early varieties, and also provides seed potatoes for export. It contains 68 percent of the total potato area of Austria.

Apart from the garden area, whose importance on the market is by no means to be underestimated, the flatland also accounts for the production of over two-thirds of the field vegetables. Both field production and garden production are closely connected with one another and are to be found mainly in the vicinity of the larger centers of consumption. Special mention should be made of the vineyards which are all in this region. They are not, however, distributed over the whole area but are concentrated in parts of Lower Austria, Vienna, Burgenland, and Styria. Fruit production is to be found in all the agricultural regions but is most important in this region, which has 68 percent of all orchards.

The lack of natural grassland is compensated by a greater emphasis on field-fodder cultivation. Milk production for fresh consumption is of great importance. Cattle feeding is also practiced intensively, utilizing the byproducts of sugar factories and alcohol distilleries, as well as imported feedstuffs. The necessary additions to the livestock are obtained from the Alpine region so that the farms of the flat and hilly land are large buyers on the feeder-cattle markets of the Alpine and Waldviertel and Muehlviertel regions. Hogs and poultry, so much less tied to natural conditions and common to all areas, are most numerous in this region. The production of hogs of the meat type and of poultry, primarily for egg production, is rather general throughout Austria.

The Farms

Austria is a country of family-sized, owner-operated farms, and the small peasant farm predominates. Strip farming is widespread, and substantial gains in farm land and particularly in economy of farm operations could be made by proper consolidation of scattered holdings. There were about 430,000 agricultural and forestry holdings in Austria in 1930, with a total area of about 18.5 million acres, including all woodland and garden land. In 1939, statistics for the "Ostmark," as Germany called Austria after its occupation, and which was about 5.2 percent larger in area than prewar Austria, show 487,000 farms of 1.2 acres and over, with a total area of 20.5 million acres. Of the area in farms in 1930, over 10 million acres were in agricultural use and about 7 million acres in forest.

There were only a few large agricultural estates, mostly in the eastern part of the country. Estimates indicate that such estates with hired managers occupied about 6 percent of the total area in agricultural use. On the other hand, about one-half the total forest area was on the large estate holdings. The fact that a substantial proportion of the land in farms was occupied by farms of over 250 acres is more an expression of the natural conditions of farming than of social inequality.

In the Alpine region, the landholdings are naturally large, since relatively little land is suitable for cultivation. In the higher altitudes it takes a considerable area to support a farm family even on a low standard of living. Of the holdings of over 250 acres, pastures and meadows comprised about 96.5 percent in Tirol and almost 100 percent in Vorarlberg. In the flat and hilly land, where arable farming strongly predominates, small- and medium-sized holdings are most numerous. Thus, farms up to 50 acres occupy fully 68 percent of the total area in agricultural use in Burgenland and 54.5 percent in Lower Austria as against 40 percent for Austria as a whole. The largest number of small farms are concentrated in Burgenland, where holdings from 5 to 25 acres occupy 42 percent of the area in agricultural use.

Austrian farmers own most of the land on which they operate. Only 4.5 percent of the total area in farms, or an estimated 6 to 7 percent of the area in agricultural use, is rented. Some pasture land, notably in Carinthia and Tirol, is in communal ownership. The largest proportions of rented land are to be found in the group sizes of less than 5 acres (20 percent of the group's total farm area) and from 5 to 25 acres (10 percent).

TYPES OF FARMING

A farm-accounting survey, which was carried out by the Chambers of Agriculture of the individual States, provides good material for the characterization of the various types of farming found in Austria. The data available for 900 farms were carefully selected and summarized for the years 1928–30. The farms were divided into 10 different types on the basis of their land utilization. From this survey, the so-called plowland farms investigated appeared to be situated at an average altitude of 1,161 feet, that is to say, in the flat and hilly country east and north of the Alps. Average precipitation was 29 inches, and the average farm size, including woodland, was 52.4 acres. On these plowland farms, about 72 percent of the productive land was cultivated, 13 percent in meadows and pastures, and 15 percent in forests.

On the other hand, so-called mixed-forest farms, located at an average altitude of about twice that of the previous group, had 62 percent of their productive area in forest, 23 percent in pastures and meadows, and only 15 percent in plowland. The average size of farms in this group was 105 acres. The pure-forest farms investigated had an average size of over 346 acres, with over 80 percent of the productive land in forest and only 5 percent under the plow. On the plow-grassland farms with alps, 46 percent of the total productive area was in meadows and pastures, 35 percent in forest, and 20 percent in plowland. The average size of these farms was just under 49 acres, the altitude 2,132 feet, and precipitation 43 inches.

The intensity of farming varied greatly among the various types of farms. Labor input per acre of productive land was highest on the small "wine farms." Next in the survey came the mixed wine farms with less than half the labor input per acre of productive area. Then follow plowland and plow-grassland farms, with about a third of the labor input but still about 50 percent more input than the grassland farms and four times as much as the forest farms.

LABOR

According to the 1939 census, there were 349,000 farm operators, 750,000 working family members, and 330,000 hired workers, or a total of 1.4 million people, employed in agriculture and forestry, noticeably less than the 1.7 million recorded by the census of 1930. Most of the work performed on the farms is done by family labor, though the share of hired labor is fairly important, especially on the forest farms. With a decrease in farming intensity, the share of the farm family's work in the total labor performed declines, and the share of hired labor increases. Thus hired labor accounted for 7 percent of total work performed on the wine farms, about 37 percent on the plowland farms, and 53 percent on the forest farms.

FARM MACHINERY

Considering the natural limitations to the mechanization of Austrian agriculture, the country has a fair number of agricultural machines and some power equipment. The German census of 1939 shows that the "Ostmark" had 23.8 threshing machines per 100 farms containing more than 1.2 acres, compared with 30.2 in Germany, 48.9 straw cutters (52.1), 8.4 drills (22.4), and 8.6 mowers, reapers, and binders (49.3). There were only a small number of tractors, 2,150, including motor mowers and garden tractors, or 4.3 per 1,000 farms, compared with 20.6 in Germany. Austria's mobile power equipment (tractors plus trucks) in 1930 generated only 6.2 percent of the farm-produced mechanical power. Roughly 60 percent of the remainder came from electromotors; 40 percent from water wheels, turbines, and stationary steam and internal-combustion engines.

Rural electrification is relatively well developed in Austria. As early as 1930, there were few communities which were not linked to the electric network. Per head of the farm population, 40 to 50 kilowatt-hours were annually consumed as compared with about 60 in Germany. Much further progress has since been made.

FERTILIZER

Fertilizer consumption was low. The quantities consumed per acre of fertilizable area in Austria are particularly small as compared with Germany (table 2). The discrepancy is partly explained by a price differential. The Austrian farmer obtained in exchange for 220 pounds of rye only 331 pounds of superphosphate in 1933 and 441 pounds in 1937 as against 441 pounds and 728 pounds, respectively, which the German farmer could buy in exchange for the same quantity of rye.

About four-fifths of all the nitrogen used was imported and only one-fifth produced domestically. Superphosphate was produced from imported rock and sulfur. Potash was entirely imported from Germany, Poland, and France. The total consumption of commercial fertilizers, which provided the three major plant nutrients, dropped from about 176,000 short tons in the years of economic improvement, 1928–29, to 118,000 short tons in 1933, the worst year of the prolonged depression of the 1930's.

Application of animal manure has not compensated for the insufficiency of fertilizer input. Austria's density of the livestock population per acre of agricultural land, in spite of its importance in the country's agriculture, is less than Germany's. Much manure is lost on roads and poor pastures. Few farms have proper facilities for collection, especially of liquid manure. Field tests in a number of areas have shown marked deficiencies of the soil in phosphoric acid, potash, and, particularly

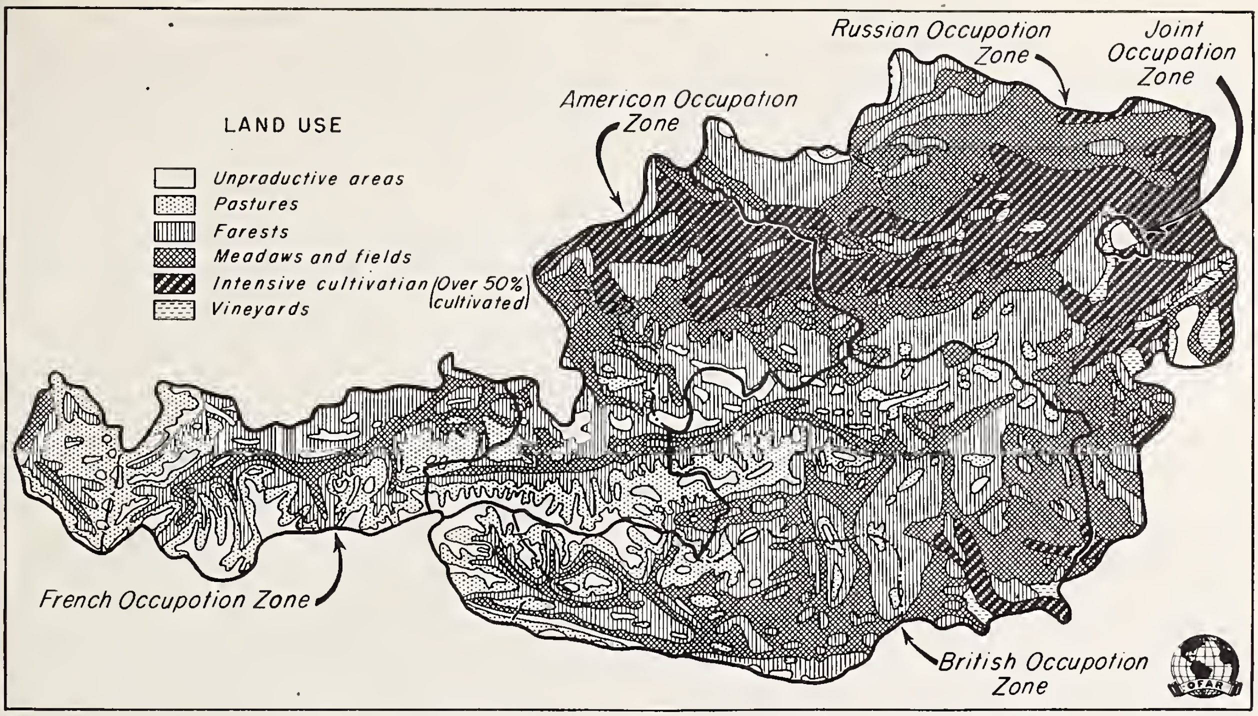

FIGURE 2.—Map of Austria showing zones of occupation and land use.

lime. While much of the subsoil is rich in lime, the topsoil is often deficient, calcium having been washed out by plentiful rains. There is ample room for agricultural improvement if fertilizer can be supplied at lower costs and the farmer be made more aware of its importance.

Gross Income and Market Dependence

Statistics of gross income of the farms sampled in the bookkeeping studies of the Chambers of Agriculture show the overwhelming importance of livestock products. On almost all types of farms, livestock products accounted for between 50 and 60 percent of the gross income. The only exceptions to this rule were the highly specialized wine farms. Milk and milk products ranked first, followed by hogs and cattle.

While small family-worked farm units are usually associated with the concept of self-supplying subsistence farms, this association does not apply in Austrian agriculture with its preponderance of animal husbandry. The Austrian farmer's market dependence is great. Two-thirds to three-fourths of his gross income is derived from sales on the market. Prices of milk, cattle, and hogs, therefore, are of major concern to the peasant; grain prices must be added for some types of farms, as well as timber prices for grassland and forest farms; and obviously wine prices for the specialized wine farms.

TABLE 2.—*Plant-nutrient consumption in Austria and Germany per acre of fertilizable area, 1922–36*

Year	N		P_2O_5		K_2O	
	Austria	Germany	Austria	Ausmany	Austria	Germany
	Pounds per acre	*Pounds per acre*	*Pounds per acre*	*Pounds per acre*	*Pounds per acre*	*Pounds per acre*
1922	0.3		1.0		1.6	
1928	1.4	11.9	5.6	15.4	2.4	21.4
1930	1.4	12.6	4.6	16.6	2.1	23.7
1932	1.3	9.9	3.4	12.0	1.9	17.0
1934	1.9	11.7	3.4	14.0	3.1	21.8
1936	1.5	15.3	4.2	19.7	2.6	29.3
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
1936 (total quantities)	5,636	541,000	16,001	701,000	9,742	1,041,000

SCHOEHL, HAROLD. OESTERREICHS LANDWIRTSCHAFT, GESTALT UND WANDLUNG, 1918–38. Berlin. 1938.

Another point worth noting emerges from the farm survey: the mountain farmers were infinitely worse off than the farmers of the flat and hilly country. This difference in economic position is at the root of the age-old political conflict between the farmers of intensive units in the flatland and the livestock farmers of the mountains. The former, relatively well to do, are thoroughly organized and politically influential. The opposite is true of the mountaineers, who, to improve their lot, require State help and protection. Only a change in the economic structure of Austria, however, could permit their transfer to more profitable occupations.

Livestock

Livestock more than any other branch typifies the character of Austrian agriculture. The form of animal keeping and management is both peculiar to this country and rather unusual to persons accustomed to animal husbandry as practiced in the United States.

In March 1934, Austria had 262,000 equine animals, of which less than 1,000 were asses and mules; 2,350,000 cattle (1,210,000 cows); 2,823,000 pigs; 263,000 sheep; 326,000 goats; and 8,680,000 chickens. For every 100 persons there were roughly 42 hogs, 35 cattle, 128 chickens, 4 horses, 4 sheep, and 5 goats. Hogs numbered about 26 per 100 acres of land in agricultural use, cattle 22, horses 25, and chickens 80. As compared with the previous census of 1923, horses, sheep, and goats had decreased in number, whereas cattle and chickens had increased. Hogs had almost doubled in number.

The census of 1938, not quite comparable because of a change in the census date from March to December, indicates increases in all types of livestock, compared with 1934, with the exception of horses, asses, and mules, which had declined further to 246,000.

CATTLE

The Austrian cattle population consists of numerous very good and hardy breeds.

Almost all the dozen, or more, breeds are triple-purpose types, providing draft power in addition to milk and meat. The emphasis on one or the other of these lines may vary. Thus, for example, the Oberinntaler is more specifically a milk producer, whereas the Blondvieh of the Waldviertel and Carinthia is better for draft and meat production. Multiple-purpose breeds are best adapted to the economic conditions of Austria. Cattle are raised in the Alpine regions; sold to the milk-producing areas of the plains; are fattened after one, or several, lactation periods; and are sold for slaughter. Estimates indicate that about 13 percent of all cows and 48 percent of the oxen over 1 year of age are used for draft. Despite the great demand for beef, pure beef types are absent.

Milk production is highest in Tirol and Vorarlberg, where the gray-brown mountain cattle predominate. The lowest milk yield is found in the mountainous parts of Salzburg, Tirol, Carinthia, and Styria, where either fodder is insufficient, or the raising of oxen is more important.

The natural pastures or alps (*Almen*) make Austria an ideal area for the raising and breeding of livestock. They provide much feed and excellent rearing conditions during the summer months, whereas the valleys, where the farms are located, furnish feed for the remainder of the year. In the plains and hilly lands wherever field cultivation predominates, animal husbandry has a wholly different form. Animals are sometimes raised to replace the farmer's own herd, but more generally new stock is brought from the Alpine regions. The density of livestock is greater per acre than in the mountains, because the yield of the land is higher; byproducts of sugar, potato, and beer manufacturing can be utilized for feeding and fattening, and the proximity to consumption centers makes dairy production profitable.

HORSES

Austria has horse breeds of good type and also the proper pastures so necessary for the raising of stock. In number, as well as breeding area, the "cold blood" type predominates. The Noriker (82 percent) is an old Austrian breed. The Haflinger breed is now concentrated in western Tirol, since southern Tirol has been ceded to Italy.

Of lesser importance is the "warm blood" breed in the plains of Lower Austria. The Lippizaner, Traber, and English full-blood may be mentioned, though they play no role in peasant farming.

As stated before, the horse population has been on the decline. There was a net import of roughly 30,000 animals per annum from eastern countries. Austria's exports consisted of quality horses, especially to Germany.

HOGS

The number of hogs is greatest in the plains because of their large fodder production and byproduct utilization. In the Alpine regions the pig is kept more for the self-supply of the farmer. The hogs are medium heavy. The German Edelschwein and the improved Landschwein, the only important breeds, have a numerical relationship to one another of 4 to 6. Lard hogs are supplied from the countries to the east.

SHEEP

In the inter-war period, the sheep population declined considerably. Sheep are common only in the mountains, where natural pastures provide favorable conditions. The most important sheep area has always been Carinthia. The Carinthian "Bergschaf" of the higher altitudes and the Carinthian "Seelandschaf" of the plains are the best native breeds and have spread through all Alpine valleys. Their rough wool is used for "Loden"[1] and in home industry. Wool prices were too low to encourage increased production, and mutton was so little in demand that, in spite of the smallness of the quantities produced, exports at times exceeded imports.

GOATS

Like the sheep population, goat numbers have declined, though at a much slower rate. In fact, while goats were only two-thirds the number of sheep in 1923, they outnumbered them by 15 percent in 1938. Apart from the very small holdings, as for example in the vineyard regions, they are found in larger numbers only in the Pinzgau of Salzburg, where their milk is converted into cheese. The annual milk yield is estimated at between 330 and 770 pounds.

CHICKENS

More important than either sheep or goat husbandry is poultry production, which developed rapidly in the inter-war period. Most of the chickens are still raised on peasant farms, despite the development of large poultry farms in the late 1930's. Attempts were made at a division of labor. Breeding and rearing were to be done by hatcheries and specialized poultry farms, whereas only the keeping was to be the task of the peasants, and some progress was made in this direction.

The most common breeds are White Leghorns and Rhode Island Reds, followed by Brown Leghorns, White Wyandottes, and Altsteirer and Sumtaler (native strains of Styria). There are also some Black Minorcas and Plymouth Rocks. On many of the peasant farms, flocks represent a mixture of breeds. The average laying record is estimated at around 78 eggs per hen, relatively low in comparison with Germany (90), Switzerland (100), and Denmark (105). Perhaps the greatest problem in poultry production was encountered in the collection and marketing of eggs. Before the war only few egg-collection centers existed in Lower and Upper Austria, in the Burgenland, and Carinthia.

Agricultural Production and Food Supplies

FOOD SELF-SUFFICIENCY

In prewar years (1933–37) Austria's population consumed daily 2,850 calories per caput, of which about 19 percent were imported directly. However, the foodstuffs of animal origin domestically produced depended in part on imported feedstuffs. If allowance is made for the food equivalent of the feed imports (6–7 calories of feed produce about 1 calorie of food), Austria's self-sufficiency appears to have been about 75 percent. The country thus was dependent on imports for 25 percent of its food supply.

In terms of energy, about two-thirds of Austria's direct imports were of cereals, which fact is not surprising in the case of a country in which grassland and forest predominate and extensive plain areas are lacking. About one-sixth of the calories imported directly were fats and oils and about one-eighth were meats. The calorie value of the imports of fruits, especially citrus, dry legumes, fish, and eggs was relatively small. Only in dairy products, sugar, potatoes, and most vegetables was Austria fully able to fill its requirements.

Historically, a self-sufficiency of 75 percent represented a new high point in the country's agricultural economy. Attached to rich surplus areas in the eastern parts of the Austro-Hungarian Empire, the Alpine Provinces had remained agriculturally backward until their political and economic isolation at the end of World War I forced them to develop their agriculture. Thus, for example, self-sufficiency with regard to wheat rose from 28 percent in 1922–23 to 65.4 percent in 1935–36. Similarly, the quotient for rye rose from 74.0 to 92.5, for barley from 64.8 to 82.2, and for oats from 88.1 to 92.3. Milk and milk products had been imported in large quantities during the 1920's.

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[1] Rough woolen cloth used in overcoats, suits, etc.

TABLE 3.—*Prewar food balance of Austria, 1933–37* [1]

Products [2]	Supply			Utilization						
	Production	Net trade	Total supply	Seed [3] and waste	Feed	Food gross [4]	Food net [5]	Manufacture or industrial use	Consumption of food per person	
									Gross [4]	Net [5]
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Pounds*	*Pounds*
Total cereals, including rice	2,096	+944	3,040	269	1,453	144	944	72	368.8	279.1
Potatoes	2,972	+15	2,987	772	1,444	661	628	110	195.8	185.8
Sugar, refined	176	+2	[6] 176	------	------	176	------	------	52.2	------
Dry legumes	24	+10	34	3	14	17	------	------	4.9	------
Fresh vegetables	587	+39	626	------	------	626	505	------	185.2	149.5
Fruits (in terms of fresh)[7]	431	+177	608	------	------	608	456	------	180.1	134.9
Meat, poultry, etc., including offals	344	+77	421	------	------	410	------	------	124.6	112.2
Fish [8]	3	+8	11	------	------	11	------	------	3.3	------
Eggs	43	+7	50	------	------	50	44	------	14.8	13.0
Fats and oils for food (as product)	86	+29	115	------	------	115	------	------	34.0	------
Cheese	33	−2	31	------	------	31	------	------	9.0	------
Milk for fresh consumption (cow's and goat's)	1,620	------	1,620	------	------	1,620	------	------	480.0	------
Skimmed milk	44	------	44	------	------	44	------	------	13.0	------

[1] Population, prewar average 1933–37, 6,760,000.

[2] The list excludes alcoholic beverages, buttermilk, curds, cocoa, and honey.

[3] Seed rates computed from HAMSCHA, H., AND DEUTSCH, O. DIE AUFGABEN DER OESTERREICHISCHEN LANDWIRTSCHAFT. Wein. 1937. Waste assumed at 3 percent in cereals, 10 percent in potatoes—see STATISTISCHES JAHRBUCH FUER DAS DEUTSCHE REICH. 1938, p. 386.

[4] Wholesale weight; cereals in terms of grain.

[5] Retail weight; cereals in terms of flour.

[6] Increase in stocks by two deducted.

[7] Production includes all fresh fruits, berries, and nuts for 1933–36. Imports from STATISTIK DES AUSSENHANDELS OESTERREICHS, 1933–36; dried fruit was multiplied by 5, figs and raisins by 4, in order to arrive at their fresh weight.

[8] Figures for fish production and imports were taken from INSTITUT FUER KONJUNKTURFORSCHUNG, WOCHENBERICHT, Berlin, Apr. 4, 1938, given for a period around 1935–36.

Prewar data partly based on official statistics and unofficial studies, partly estimated.

In the beginning of the 1930's the country changed to a net-export position with regard to dairy produce. While to some extent these developments represented only recovery from the low wartime and immediate postwar levels, in large measure they did constitute genuine progress.

THE FOOD BALANCE

Figures indicating the production, trade, and crop utilization for various items that enter the food balance have been compiled to give an average of the years 1933–37 (table 3). They are partly based on estimates in the absence of special surveys inquiring into the utilization of foodstuffs. Statistics on the development of acreages, yields, and production for the main crops are shown for the years 1922–37 (table 4).

Grain.—Wheat and rye are the only important food grains produced and consumed in Austria. In order of acreage, as well as production, rye precedes wheat, and oats precede barley to a considerable extent. Grain yields average about 0.7 short ton per acre, or about 80 percent of those in Germany. Aside from corn, which is grown only to a small extent (Styria, Carinthia), barley gives the highest yields of grain in Austria, closely followed by wheat. Yields of oats and rye are 10 to 15 percent lower than those of wheat and barley.

Although the consumption of wheat exceeded that of rye by about 10 percent, the area planted to rye was 60 percent larger than the wheat area. In 1933–37 domestic production of rye (624,000 short tons) exceeded that of wheat (433,000 short tons) by 44 percent. A considerable amount of rye was fed to livestock, notably hogs.

Wheat imports steadily declined from an average of 452,000 short tons during 1928–32 to about 254,000 short tons in 1938. This reduction was made possible by an increase in the wheat acreage from about 494,000 to 618,000 acres, as well as by an increase in yields per acre. To some extent, also, the contraction in consumption, owing to a decline in incomes, operated to reduce wheat imports. Principal sources of wheat imports were Hungary, Rumania, Yugoslavia, and, in earlier years, Canada and the United States.

Rye imports (which during 1933–37 made up 15 percent of the total supply) varied greatly from year to year, compensating for considerable variations in yield.

Barley was used in the brewing industry (15 percent) and for feed (75 percent). The domestic output of brewing barley about sufficed in the middle 1930's to meet the needs of the local industry, whose output, owing to reduced beer consumption, had been about halved. Feed barley had to be imported (73,000 short tons in 1933–37). Almost all imported barley came from Rumania. Small quantities of barley for human consumption were used in soups and in roasted form as coffee substitute.

Practically all the net supply of oats was fed to animals, with less than 1 percent consumed as food. Prewar imports came from Rumania, Yugoslavia, and Czechoslovakia. Rice was all imported. The chief supplying countries were Italy, British India, and Siam, some of the rice being imported by way of the Netherlands. Other grains, such as spelt, buckwheat, and millet, were of very minor importance in the human and animal diets. Corn for food was consumed to some extent in Styria and Carinthia, and large imports (441,000 short tons) were made for feed purposes (hogs, poultry).

About 41 percent of all cereals, including rice, were used for food, 48 percent for feed, and only 2.4 percent for industrial purposes.

Potatoes.—The potato acreage steadily expanded in the period between the two World Wars from 403,000 acres in 1922 to 534,000 acres in 1937. Production likewise increased, from a level of about 1.5 million short tons in 1922 to about 3.3 million short tons (average 1936 and 1937), as a result of increased yields. Yields in Austria, in recent prewar years, averaged just under 14 short tons per acre or about 80 percent of the German yields.

In the base period used in this discussion (1933–37), imports were less than 1 percent of total supplies and consisted of early potatoes from Italy and Egypt and of seed potatoes from Germany and Poland. More than half the potato crop was fed to animals; less than one-quarter entered the human household; 3 to 4 percent was industrially processed, mainly in distilleries; and the remainder (about one-fourth the crop) was taken up by seed needs and waste. Per capita consumption of potatoes is low as compared with consumption by Austria's northern neighbors.

Dry Legumes.—Production and consumption of pulses are small in Austria. During 1933–37 about 30 percent of the pulses were imported, and domestic production averaged only 24,000 short tons a year. The area planted to pulses was 69,000 acres in 1913, 35,000 acres in 1922, 57,000 in 1929, and 29,000 in 1936. Thus, the prewar acreage was not attained again. The main edible pulse crops are beans (10,000 short tons in 1936), peas (7,200 short tons in 1936), and lentils (1,268 short tons

TABLE 4.—*Acreage, yield, and production of specified crops, average 1909–13, annual 1922–39*

Item and crop	Average 1909–13 [1]	1922	1925	1930	1933	1934	1935	1936	1937	1938	1939
						1,000 acres					
ACREAGE											
Wheat	489	459.6	484.1	507.8	542.6	572.8	601.2	623.9	619.0	619.0	691.4
Rye	1,035	833.7	948.9	926.6	957.5	943.2	943.7	920.7	885.1	903.6	905.1
Barley	336	313.1	347.9	430.0	422.8	411.7	402.5	403.0	412.9	415.9	458.1
Oats	850	703.7	760.3	771.7	755.4	748.2	735.4	712.9	709.9	710.2	679.0
Corn	121	148.3	148.8	142.6	158.6	160.4	156.2	157.6	172.7	180.4	171.2
Potatoes	383	403.3	435.4	465.8	504.1	498.9	500.1	518.7	532.7	531.3	531.5
Sugar beets	62	27.7	49.7	87.5	114.9	122.6	108.2	93.2	99.8	116.6	118.4
						100 pounds per acre					
YIELD											
Wheat	12.2	9.7	13.2	14.2	16.2	13.9	15.5	13.5	14.3	16.9	15.7
Rye	12.1	9.1	12.8	12.5	15.8	13.4	14.5	11.3	11.9	14.4	13.4
Barley	11.1	8.6	12.7	13.7	17.4	15.8	14.8	15.2	15.4	17.2	15.8
Oats	10.5	8.3	11.3	11.4	14.7	13.7	11.7	13.2	14.7	14.5	12.8
Corn	13.2	13.1	17.3	18.7	19.0	21.3	18.0	23.9	26.3	24.5	16.9
Potatoes	74.6	76.4	104.7	125.6	103.0	121.5	105.5	100.7	149.5	135.7	126.6
Sugar beets	214.8	137.5	218.5	245.2	204.8	249.6	234.3	215.8	222.6	237.9	260.0
						1,000 short tons					
PRODUCTION											
Wheat	298	222.7	320.1	360.2	438.5	399.3	465.3	421.3	441.3	524.6	542.4
Rye	626	380.5	606.4	577.8	757.3	633.3	683.6	521.1	525.5	649.0	608.1
Barley	186	134.4	221.2	294.6	367.0	325.0	298.0	306.5	317.6	358.0	362.9
Oats	446	293.1	428.1	441.7	554.2	514.2	430.8	471.0	523.4	516.4	433.0
Corn	80	97.3	128.7	133.2	150.6	170.9	140.7	188.4	227.4	220.7	144.7
Potatoes	1,429	1,541.3	2,280.0	2,924.5	2,595.8	3,030.7	2,637.3	2,611.0	3,981.2	3,604.7	3,363.8
Sugar beets	666	190.5	543.0	1,072.9	1,176.7	1,530.1	1,267.6	1,005.8	1,110.7	1,387.1	1,539.4

[1] Calculated for post-1922 area of Austria as per statistics given in DEUTSCHE AGRARPOLITIK (Friedrich-List-Gesellschaft), Berlin. 1932, Ergaenzungsteil, p. 279.

Compiled from official statistics, except as noted in 1936). Imported pulses came from Rumania, Yugoslavia, Poland, and Hungary.

Sugar.—By the middle 1930's, Austria had become self-sufficient in sugar. Between the two wars the sugar beet's development was more spectacular and contributed more to the advancement of the country's agriculture than any other crop. In 1922, self-sufficiency was only about 31 percent, but it reached 98 percent in the 2 years 1933 and 1934. The acreage under sugar beets increased from 59,000 acres in 1927 (when it had about reached the prewar level) to 124,000 acres in 1934. Yields per acre also increased from about 26.5 short tons in 1925 to an average of about 27.6 during 1933–37, being again about 80 percent of the German yields.

After 1935 the sugar-beet area had to be deliberately restricted, since no export of sugar was possible. Sugar consumption per capita (52.2 pounds) was at about the German level—still low as compared with countries like England or Denmark, which consumed more than double this quantity, but high in relation to consumption in southern and eastern Europe.

Vegetables.—Out of a total average supply of 626,000 short tons of vegetables during 1933–37, only 39,000 short tons, or 6.6 percent, had to be imported. Roughly 20 percent were assumed to be lost through spoilage and waste. About one-half the domestic vegetable supply consisted of cabbages. Pumpkins, onions, cucumbers, lettuce, tomatoes, green peas, parsley, celery, green beans, and asparagus also were produced and consumed in sizable quantities. One-third of the imports were early vegetables, which for climatic reasons cannot be produced domestically. Major sources of import supplies were Italy, Hungary, and Egypt.

Consumption of vegetables in contrast to most other foods rose by more than 40 percent above levels existing prior to World War I. Production kept pace with consumption. Both the area planted to vegetables and yields per acre increased markedly.

Fruits.—The total fruit supply during 1933–37 averaged 608,000 short tons, of which 177,000 short tons (29 percent) were imported. The fruit locally produced consisted mostly of apples and pears; stone fruit (plums, cherries, apricots, and peaches), berries, and nuts (including some edible chestnuts) also were produced. The chief sources of import supplies were Italy, Yugoslavia, and Hungary. Roughly one-third the imports were tropical and subtropical fruits. It should be noted that Austrian fruit is generally of poor commercial quality; little attention has been paid to orchards. A large number of varieties are grown. Handling, packing, storage, and standardization are inadequate. For a number of years, between the months of October and December, considerable quantities of low-quality apples were exported, whereas in the January-to-August period quality apples from the United States were brought in.

Meats.—Almost 60 percent of the Austrian meat consumption consisted of pork and more than one-fourth of beef; veal, mutton, lamb, goat, poultry, and rabbit provided most of the remainder. As compared with American or English habits, very little mutton or lamb is consumed. Imports of meat or live animals for slaughter had been steadily reduced and during 1933–37 averaged only 18 percent of total consumption. They came mainly from Hungary, Rumania, Yugoslavia, and Poland.

Fish.—Domestic (fresh-water) fish production was small; three-quarters of the total fish supply was imported, mostly sea fish from Germany. Per capita consumption was very low.

Fats and Oils.—Considering only direct imports, Austria was about 75 percent self-sufficient in fats and oils. A substantial share of the domestic fat output, however, was produced from imported feed so that the genuine self-sufficiency degree was only about 55 percent. Over 70 percent of Austria's fat production consisted of slaughter fats, chiefly lard, fat back, and some tallow. Butter accounted for 28 percent of the total and vegetable oils for only about 1 percent. Roughly 15,000 short tons each of slaughter fats and vegetable oils for human consumption were imported. The former entered in the form of fat hogs from Poland, Rumania, Yugoslavia, and Hungary. The latter consisted of imported oilseeds, as well as soybean, coconut, and palm-kernel oil. Oilseeds imported were crushed in the country. The chief item in this group was copra, with imports during 1933–37 averaging 11,800 short tons. Roughly half of all imported vegetable oils (including oils from imported seeds) were utilized in industry.

With somewhat more than 10 percent of the butter output exported (mainly to Germany and

Great Britain), Austrian consumption of fats and oils for food consisted of about 85 percent animal fats (19 percent butter, 66 percent slaughter fats), and 15 percent vegetable oils.

Milk and Milk Products.—During the 1933–37 period roughly 1.2 million milk cows, with an annual average production of 4,630 pounds per cow, produced 2,798,000 short tons of fresh milk a year. Of the total, 58 percent was consumed as fresh whole milk, over 20 percent was used in butter manufacture, and approximately 10 percent each was converted into cheese and fed to animals. Estimates indicate that, of the skim milk and buttermilk produced (about 551,000 short tons), 463,000 short tons were fed to animals, and 44,000 short tons each were consumed in households and processed into storable products such as dry milk.

A characteristic of Austrian milk utilization was the high consumption of fresh whole milk (58 percent) as compared with Germany (28 percent). Conversely, little more than 30 percent of the whole milk was made into cheese and butter, against over 60 percent in Germany. Thus, while fresh-whole-milk consumption per capita was roughly double that in Germany, less than half as much butter and only three-fourths as much cheese were consumed per person.

Production and consumption of milk and milk products increased greatly in the inter-war period. By 1929, Austria had become self-sufficient, by 1930 even an exporter of milk and milk products. In 1933 local milk consumption was at a maximum, owing to a drop in milk prices. Many and diverse measures were taken to counteract the flooding of the domestic market, with only partial success. Exports were subsidized so that the internal price exceeded that of the exported product. Germany and Great Britain, and to a lesser extent Italy, were the chief importers of Austrian dairy products.

Eggs.—Austria was roughly 87 percent self-sufficient with regard to eggs, not considering production from imported feed. The attainment of full self-sufficiency was made difficult by cheap imports, especially from Hungary, Poland, and Yugoslavia. Yet, imports in the 1930's declined sharply, since consumption was considerably reduced as a result of the general contraction of consumer income.

Wine and Beer.—In 1935, the wine area amounted to 82,914 acres. More than four-fifths of the vineyards were interplanted with fruit trees. Wine production varied greatly, with the weather, from about 60 million quarts to 150 million quarts. In the best year recorded so far, 1915, 154 million quarts were produced, and the poorest year, 1927, yielded only 23.9 million quarts. The Austrian wines are almost all white wines, and the better ones are said to compare in quality with Rhine and Moselle wines.

The largest portion of the output is consumed as yearling wine. Imports of wine, mainly coming from Italy, amounted to about 10 percent of consumption, which increased steadily from a low of 14.1 quarts per capita in 1925 to a high of 22.1 quarts per capita in 1937.

The consumption of beer, which is considerably more important than wine in Austria, has shown the opposite trend. Maximum consumption in the inter-war period was reached in 1926 (total consumption 576 million quarts and 86.5 quarts per capita); by 1936 total consumption had declined to 232.4 million quarts, or 34.4 quarts per capita. The reduction was largely attributed to the decline in income and employment. Moreover, beer taxes had risen from 0.25 to 0.79 schilling per gallon, or by more than 200 percent between 1926 and 1930.

Austria's brewing industry is of considerable importance and fills not only virtually all the country's domestic needs but normally provides also a small quantity for export (mainly to Italy). Imports of beer were negligible before the war.

TABLE 5.—*Comparison of per capita consumption in selected countries, average 1933–37*

Item	Italy	Austria	Germany
	Pounds	*Pounds*	*Pounds*
Cereals (including rice) as flour	375	280	238
Potatoes	84	196	390
Sugar (refined)	15	53	49
Vegetables	117	150	106
Fruits, fresh	90	[1] 134	93
Fats and oils	24	33	57
Meat (carcass weight)	44	126	101
Fish	13	4	26
Milk, whole	79	481	271
Cheese	11	9	11
Eggs	15	13	15

[1] Including fruit for juices and cider.

Office of Foreign Agricultural Relations; partly from official statistics, partly estimated.

PER CAPITA CONSUMPTION AND AVERAGE DIET

A comparison of the dietary pattern of Austria with that of Germany and of Italy (table 5) highlights the fact that the Austrian diet is largely intermediate between the standards that prevail in these two countries. In regard to cereals, the low consumer is Germany; in potatoes and fats and oils, it is Italy. In regard to fruits and vegetables, Austria is quite similar to Italy; in sugar and meat consumption, its dietary intake is more like that of Germany. It is particularly high in fresh-milk consumption and characteristically low in the consumption of fish.

In prewar years, the average consumer had a daily intake of 83 grams of protein, 100 grams of fat, and 400 grams of carbohydrate, or about 2,800 calories, excluding alcohol. More than half (53 percent) of the proteins consumed and about 37 percent of the calories were of animal origin.

At present, while Austria is still divided into zones of occupation, the indigenous food supply relative to the population varies greatly between zones. The Soviet Zone produced normally about two-thirds of the total Austrian food calories but has only one-third of the country's population. The inverse relationship maintains for the remaining zones combined, among which differences in domestic per capita food supplies are less pronounced. Greater destruction from active warfare, however, and slower recovery in eastern Austria have reduced somewhat its share in the national food output.

Soviet Collective-Farm Decree

by **THEODORA MILLS***

During the postwar period in the Soviet Union, the policies of collectivism in agriculture are being reenforced by a recent decree aimed at the correction of violations of the basic Charter of 1935 and subsequent legislation. These violations cover abuses in the division of income among the collective-farm members, misappropriation of the public lands of the collective farm, pilfering of its property, and maladministration of the farms by Party, Soviet, and collective-farm officials. The enforcement of this decree is vested in a newly established Council for Collective Farm Affairs, with wide supervisory powers over the collective-farm system.

Scope of New Decree

Much as the tendency in the postwar period in the United States is to emphasize the desirability of a return to the freer economy of the prewar days so in the Soviet Union is the reaffirmation of the policies and practices of prewar collectivism. This is manifested most clearly as far as agriculture is concerned in the decree of the Council of Ministers of the U. S. S. R. and of the Central Committee of the CPSU (B) [Communist Party of the Soviet Union] enacted September 19, 1946.[1]

The new decree, "On Measures for the Liquidation of Violations of the Charter of the Agricultural Artel in Kolkhozy," as its title indicates, is intended to reenforce the basic law of collective agriculture, the Charter of 1935, in the collective farms or *kolkhozy* [2] of the Soviet Union. The predominant form of the *kolkhoz* has been the so-called "artel" in which the principal means of production—land, draft animals, much of other livestock, and farm machinery—are collectivized, but the home, a small plot for a kitchen garden, and a few animals remain in the possession of the peasant family.

In 1938 there were 242,400 collective farms accounting for 85.6 percent of the total sown area and comprising 19 million peasant households.[3] This means that 93.5 percent of the peasant households were members of kolkhozy.[4] Since the adoption of the Charter of 1935, the basic law under which kolkhozy are administered, violations of it have been frequently publicized in the Soviet press, and Government measures were enacted from time to time aiming at correction of such abuses. The war no doubt created fresh opportunities for violation of the Charter, and the present decree is perhaps the most comprehensive among the corrective measures enacted.

The violations of desired collective-farm policy, which precipitated the issuance of the decree, are summarized in the latter thus:

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*Office of Foreign Agricultural Relations.

[1] *Pravda, Izvestiya,* and other papers, September 20, 1946.

[2] VOLIN, LAZAR. THE RUSSIAN PEASANT HOUSEHOLD UNDER THE MIR AND THE COLLECTIVE FARM SYSTEM. Foreign Agr. 4 : 133–146. 1940.

[3] *Kolkhozy vo Vtoroi Stalinskoi Pyatiletke,* 1939, p. 1. *Posevnye Ploshchadi SSSR,* 1939, p. 6.

[4] *Kolkhozy vo Vtoroi Stalinskoi Pyatiletke,* 1939, p. 1.

These violations are manifested in the incorrect utilization of working days, misappropriation of the public lands of kolkhozy, in the pilfering of kolkhoz property, abuses on the part of district and other Party and Soviet workers, violation of the democratic bases of the management of the affairs of the agricultural artel—the election of directing bodies and chairmen of kolkhozy, their accountability to meetings of kolkhoz workers.

All these types of violations have been the subject of newspaper complaints at previous times. The meaning of this summary of them is elaborated in the decree and in illustrations found in the Soviet press.

Unfair Farm-Wage Payments

The expression "incorrect utilization of labor days" refers to irregularities in payment of *kolkhozniki* (collective-farm members). One should bear in mind that a member of a kolkhoz is not paid a money wage as the workers of Soviet factories or even State farms are. Instead, he is paid in cash and in kind according to the quantity and quality of the work he performs. This payment is a share of the residual product remaining to the kolkhoz after it has delivered its required quota of the crops and livestock products to the State, has paid for the services rendered by the State Machine Tractor Station, and has set aside necessary provisions and money for seed, feed, insurance, capital reserve, and other communal needs.

This residual product is distributed in kind and in cash to the kolkhozniki on the basis of so-called "labor days," which are arbitrary units for measurement of the work performed. In accordance with a sort of piecework system, standard tasks of daily performance are set up for the different types of work in the kolkhoz.[5] For the purposes of payment, the performance of each standard task is credited in "labor days" or fractions or multiples thereof. The greater the skill and responsibility required the better paid is a task in terms of "labor days." At the end of the year, the value of a "labor day" is established by dividing the total kolkhoz income, cash and kind, available for distribution into the total number of "labor days" credited. Individual incomes are then computed according to the number of "labor days" earned.

As might be expected with such a system, the intent of the law is violated when the staffs of the kolkhozy are padded with essentially nonproductive workers credited with a large proportion of "labor days." The decree protests against inflated administrative staffs and service personnel and with crediting lazy kolkhozniki with many "labor days" for little actual work. Furthermore, kolkhoz chairmen have been issuing foodstuffs to some kolkhozniki independently of the work performed and without consultation with other officials or assembled members of the kolkhoz.

The total number of "labor days" earned by the kolkhoz was found to be inflated by the practice of crediting various individuals and organizations with "labor days" for work only indirectly, if at all, related to the operations of the kolkhoz. Duty officers, watchmen, and couriers of village soviets (governments), chiefs of fire brigades, and various other employees of village soviets and of district governments were found to have been credited with "labor days." Work, such as building, repairing, and hauling, performed by the kolkhoz for various village and district organizations has also been credited in "labor days." Even barbers, cobblers, and tailors have been put on the pay rolls of kolkhozy instead of being paid by the individual collective farmers.

These irregularities result in giving some workers, who may be members of the kolkhoz, or merely outsiders included on the pay roll, a disproportionately large share of the kolkhoz earnings and in reducing the amount of the total income which can be apportioned for each "labor day." Consequent upon these results is a "slackening of the interests of kolkhoz farmers in kolkhoz work."

The existence of such violations is evidenced in reports in the press about the new decree and its enforcement. From Kuibyshev Province comes a report stating that the proportion of "labor days" earned for administrative work increased from 8 percent in 1940 to 14.6 percent in 1945. In some kolkhozy the proportion reached as high as 44 percent.[6]

Misappropriation of Common Land

From the point of view of the development of collectivized agriculture, possibly the most serious offense listed in the decree is "the misappropriation of the public lands of the kolkhozy." The artel structure of collective agriculture in the Soviet Union grants to each household in a kolkhoz a small plot of land and permits it to hold some livestock for personal use. This arrangement is apparently subject to abuses which extend the scope of the private economy at the expense of the collective production. This emphasis on the extension of private farming suggests that the Government may be concerned about the adverse effect on required deliveries to the State of collective-farm produce.

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[5] There are some exceptions to the piecework system as, for example, the kolkhoz chairmen.

[6] *Socialist Agriculture*, October 2, 1946.

The decree of September 19, 1946, refers to a previous decree of May 27, 1939, entitled "Concerning the Measures for Safeguarding the Public Lands of Kolkhozy from Misappropriation."

Because the decree of May 27, 1939, "has been forgotten by many party and government officials and instances of the misappropriation of the public lands of kolkhozy have again been practiced on a mass scale," it is reissued. This decree was also directed against the extension of private farming by the kolkhozniki, by means of illegal expansion of their private kitchen-garden plots. The allotment of such plots to those who did not work, or worked but little, in the kolkhoz is also condemned.

The principal objective of the decree was to correct the loss of manpower needed for the work in collective fields, which resulted from such an extension of private farming by the kolkhozniki. In order to restrict such private farming, the decree of May 27, 1939, prescribed a number of measures. It drew a sharp distinction between the kolkhoz common land and that available for allotment as kitchen gardens for the members. Segregation of the two types of land was ordered. The area of common land could not be reduced but only increased. The members of collective farms who had private allotments in excess of the 0.6 to 2.5 acres permitted by the Charter of 1935 were to lose the surplus land, which was to be added to the common land of the kolkhoz.

Provision was made for land surveys, which were to segregate private allotments from common lands as well as to reduce the size of the former to the legal maxima. When the land available for private allotment in the kolkhoz was exhausted, it was provided that members who could not obtain an allotment be resettled in other, sparsely populated, regions of the country. Strict punishment was decreed for local government and kolkhoz officials permitting misappropriation of public lands of the kolkhoz. Members of the kolkhoz who leased, or transferred, their kitchen gardens to other persons were to be expelled from the kolkhoz and lose their private plots. For the leasing of kolkhoz meadows to members, or outsiders, the kolkhoz chairmen were to be expelled and prosecuted as violators of the law.

The decree of May 27, 1939, not only aimed at increasing the kolkhoz labor supply by decreasing its opportunities for private farming but also fixed for each agricultural region a minimum number of "labor days" which men and women kolkhozniki are obliged to work in order to remain in the kolkhoz. These minima range from 60 to 100 "labor days" per year. Families whose members are able to work and do not earn the minimum of "labor days" lose their kitchen-garden land.

In addition to the abuses listed in the decree of 1939, the decree of 1946 also stresses the fact that the misappropriation of common lands is often the result of extending the private allotments of chairmen and other officials of kolkhozy for their personal use. While the amount of land involved is relatively small, the amount of labor power used in cultivating the private plots is considerable. Therefore, the shifting of such labor supply to collective-farm work through curtailing private farming was doubtless an important aim of the decree, especially under the present conditions of labor shortage.

During the war, agriculture suffered tremendous damage. A large amount of land remained unseeded, and the food situation consequently became very difficult. The principle of collectivism also suffered from some reintroduction of private-property farming by the Nazis in the invaded regions. All these factors tended to favor the extension of private farming without legal permission but, also, apparently without interference by the authorities. Moreover, by a decree of April 7, 1942, industrial organizations and military units were allowed, upon the consent of the kolkhoz, to farm kolkhoz land temporarily if it was not being used and if other State land was not available. This permission is specifically revoked in the new decree.

The significance of this new policy and its relative importance in the correction of all kinds of misappropriation of lands is indicated in a report in the newspaper *Socialist Agriculture*, November

15, 1946. It states that on 78,359 kolkhozy, for which preliminary data are available, the enforcement of the new decree resulted in the return to collective use of 300,000 hectares (741,300 acres) of land that had been farmed as private gardens and over 1,500,000 hectares (3,706,500 acres) that had been farmed by various Soviet institutions.

The revocation of the above-mentioned special permission is related to the difficulties which the Government is experiencing in obtaining its required deliveries from such farms. The point is very specifically made in an article in the newspaper *Izvestiya*, September 7, 1946. The report deals with conditions in the Province of Chelyabinsk, where the farms belonging to various Soviet institutions delivered only 2 or 3 percent of their grain to the Government. In addition, the same article points out that these farms, being inadequately equipped and staffed, turn to the collective farms and Machine Tractor Stations for equipment, draft power, and labor, thus lowering the productive capacity of the collective farms from which the Government primarily obtains its farm produce.

The enforcement procedures outlined in the main body of the decree of September 19, 1946, required an inspection in every kolkhoz for the purpose of checking the land-use practices against its land records. Where deviations were found, the land had to be returned to the use of the kolkhozy by November 15, 1946.

Inspections of kolkhozy described in the agricultural press show many instances of the extension of private farming at the expense of collectivized farming. A report from Kuibyshev Province states that "of 58,000 collective farm households, in which the individual garden plots were inspected, 7,036 households had arbitrarily increased their garden plots." [7]

Misappropriation of Produce

The decree protests against pilfering produce and money from kolkhozy or acquisition of products at nominal prices. The offenders mentioned are Party and Government workers in districts and villages. The illustrations cited in the press suggest that sometimes there is collusion between kolkhoz administrators and Party and Soviet officials.

Objection is also made to a somewhat similar malpractice according to which State and other organizations fail to pay kolkhozy promptly for produce and work supplied them. The decree prohibits under penalty of criminal prosecution any district, or other organization or individual, from demanding food products or money from collective farms for the needs of these organizations and particularly "for the holding of congresses, conferences, celebrations and for the financing of district [government] construction."

The numerous illustrations in the Soviet press of such offenses suggest not only that they are all too many but also that the manner in which they are committed might better be described as extortion rather than pilfering or stealing. For example, the chief of the Provincial office of agriculture of Vladimir Province compelled the district seed-cultivating farms of the Province to hand money over to him systematically and to deliver grain, potatoes, seeds, hay, and vegetables.[8] At a kolkhoz in Kirov Province, the kolkhoz chairman appointed a shepherd, paid him an exorbitant amount, 50 poods (1,800 pounds) of grain, and then divided the grain with him.[9]

Such misappropriations of kolkhoz produce have the effect of reducing the required delivery of farm products to the Government, according to one writer.[10] The method by which this takes place is described in an important article in *Culture and Life* by Professor I. D. Laptaev. In the article, a reprint of a speech to Communist Party lecturers, Professor Laptaev says:

> There are cases in which the leaders of certain collective farms conceal from the State the actual reserves of grain which exist in the collective farms, permit them to be squandered, do not carry on a struggle against squanderers of collective farm property.

Undemocratic Administration

The final category of charter violations enumerated in the decree of September 19, 1946, is described as "violation of the democratic principles in the administration of kolkhozy." By this is meant infringement of the rights of kolkhozniki to elect kolkhoz chairmen and auditing commissions and to express their views on economic plans and their execution. As the decree points out, the chairman and officials of a kolkhoz are accountable to the general meeting of the kolkhoz, but in the perpetration of the other violations listed they have often evidenced an irresponsible, arbitrary attitude. This attitude is most clearly shown when kolkhoz chairmen even fail to call general meetings of the members and thus "debar them from participation in the affairs of the kolkhoz."

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[7] *Socialist Agriculture*, October 2, 1946.

[8] *Socialist Agriculture*, October 12, 1946.

[9] *Socialist Agriculture*, September 28, 1946.

[10] DMITRIEV, V. BASIC LAWS OF COLLECTIVE FARM LIFE. Planovoe Khoz 1946 (5) 27–38. 1946.

Furthermore, the decree points out that not only are collective farmers often not consulted about kolkhoz affairs, but they are not even given a voice in the choice of kolkhoz chairmen, who are supposed to be elective officials. In fact, outsiders to the kolkhozy are often appointed as chairmen, and they are frequently appointed and removed at will by district Party and Soviet officials. These officials, it is to be noted, are themselves responsible for the agricultural-production goals of the kolkhozy set up by the Government.

Correction of such conditions is demanded in the decree, which required that general meetings of kolkhozniki be called not later than February 15, 1947. Presumably the emphasis on more democratic methods of government in the kolkhozy is intended to offset the unfavorable effect on peasant morale of the curbing of private farming.

The frequent turn-over of kolkhoz chairmen, long a complaint in the press, as well as their undemocratic selection are illustrated by a report from Borispol district of Kirov Province where during one year 17 collective farms had 57 different chairmen.[11] And in another district of Kirov Province, the press reported that 12 chairmen were appointed without general meetings of the collective-farm members.[11]

Enforcement of Decree

The main body of the decree, which deals primarily with enforcement procedures, censures the distortions of policy described in the introduction and obliges leaders of Party and Soviet executives of the Republics and Provinces to liquidate the violations. The various malpractices must be discontinued. Both the inspection of land-use practices on the kolkhozy, mentioned above, and the return of misappropriated common lands had to be completed by November 15, 1946.

The enforcement provisions of the law are not limited to those mentioned above. In addition, a final report on the fulfillment of the decree must be made, and a Council on Kolkhoz Affairs must be established. The functions of this council are to see that the basic charter is strictly observed and to deal with the various problems of collective farming.

The membership of this supervisory council was announced in the press on October 9, 1946. The chairman is Mr. Andreev, a member of the Politburo, the highest organ of the Party, the vice chairman of the Council of Ministers of the U. S. S. R. The two vice chairmen are V. M. Andrianov, a member of the important Organization Bureau of the Central Committee of the Communist Party, and N. S. Patolichev, the secretary of the Central Committee of the Communist Party. The secretary of the new council is G. V. Perov, a member of the Party Control Commission of the Central Committee of the Communist Party. The Minister of Agriculture Benediktov is another of the high Government officials represented in this Council, but the Ministers of Industrial Crops and of Animal Husbandry are not members. There are, however, a number of kolkhoz chairmen among the 39 members of the council.

By October 22, the newspapers carried a statement from the Council of Ministers of the U. S. S. R. "On Ratification of the Statute of the Council for Kolkhoz Affairs under the Government of the U. S. S. R." This statement outlined the tasks and rights of the Council for Kolkhoz Affairs and thereby clearly established it as the supervisory Government agency for kolkhozy.

The Council for Kolkhoz Affairs is to meet once every 3 months, and in between times its functions are to be carried out by a permanent staff, including a presidium of 11 members, representatives in the different Republics, regions, and Provinces, and inspectors. These representatives and inspectors are responsible to the council itself and not to any local government or Party office. The representatives are selected by the Council of Kolkhoz Affairs and are then approved by the Council of Ministers of the U. S. S. R. They themselves have very considerable authority.

The functions of the Council for Kolkhoz Affairs are quite broad. Primarily, it is an enforcement agency for the decree of September 19, 1946, but also for all other legislation affecting the kolkhozy. Its independent structure emphasizes the importance attached to these enforcement functions. The council can impose punishment itself or institute legal procedures against offenders and "if necessary raise with the Government the question of removing such officials from the posts they occupy."

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[11] *Socialist Agriculture,* September 28, 1946.

In addition, the council serves as a complaint office. It "reviews questions connected with the life of the kolkhoz and kolkhozniki raised by the kolkhoz and kolkhozniki, their statements, and complaints and takes the necessary measures to deal with them." Another type of function to be performed by the council is that of initiating and drafting legislation relevant to all problems of collective-farm administration.

With the creation of this new council, another layer is added to the administrative structure over the collective farms. There is the Ministry of Agriculture with branches in the Republics, Provinces, and districts. Then there are the Machine Tractor Stations which service the kolkhozy and exercise some supervisory functions. Even more important are the Communist Party officials who also exercise their authority on the local, as well as the National, Republic, and Provincial levels. And now there is the Council on Kolkhoz Affairs.

The results of the decree were summarized by the Minister of Agriculture in a speech which was reported February 22, 1947, in the newspaper *Socialist Agriculture.* He stated that 5 months after the decree was issued, over 4 million hectares (approximately 10 million acres) of land had been returned to kolkhozy. Tens of thousands of livestock and other property and money have also been returned. Over 600,000 superfluous workers, or people not working on kolkhozy but receiving "labor day" earnings, have been removed from the pay rolls. In spite of these large figures, the Minister concluded his remarks on the decree with the reminder that liquidation of violations of collective-farm laws was far from complete.

From this summary, the conclusion can be drawn that collective farming will conform for the present more closely to the basic charter with respect to the size of garden plots and the amount of livestock in individual use. Whatever the effect of the reduction of land and livestock in private use may be on over-all production, the reemphasis on collective farming and the closer supervision of farm affairs by the Council of Kolkhoz Affairs will doubtless tend to facilitate Government procurements of farm products.

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Agricultural Collaboration in the Middle East

by **AFIF I. TANNOUS**[*]

Through trade, unselfish educational activity, the obtaining of oil concessions, and the influence of immigrants of Arabic origin, the United States has developed vital interests and a reservoir of good will in the Middle East. At present the countries of the region are turning to the United States Government for political support and for expert help and guidance in serious efforts to develop their agriculture, the main source of their living.

The Region

For purposes of this statement, the western boundary of the region under consideration may well be at El 'Alamein in western Egypt, where the tide of World War II was finally turned against the Axis powers. Extending from that point to the south, east, and north, the following countries are encountered: Egypt, Anglo-Egyptian Sudan, Yemen, Saudi Arabia, Trans-Jordan, Palestine, Syria, Lebanon, and Iraq.

The physical aspects of the region are characterized by extreme contrasts in topography and climate. There are two great river valleys, that of the Nile in Egypt, extending into the Sudan, and that of the Tigris and the Euphrates in Iraq. There are vast deserts of burning sand, broken here and there by luxuriant oases. The tropical depression of the Jordan, several hundred feet below sea level, lies in the heart of an area that is distinctly temperate. Magnificent mountain ranges rise to heights of ten and eleven thousand feet in Lebanon and northern Iraq. On the vast interior plains and plateaus, the people, since time immemorial, have grown cereals and grazed great flocks of sheep and goats. Rain is plentiful along the Mediterranean coast and on the mountain slopes, torrential in southern Sudan, moderate in the interior parts of Palestine, Lebanon, and Syria, and extremely scanty in most of the remaining parts of the region. Water is indeed for the region as a whole a precious element.

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[*] A summary of background material prepared to acquaint members of the Middle East Mission with conditions in that region prior to their recent survey. The observations and recommendations made by the Mission will be presented in a future article by Mr. Tannous.

The People

About 45 million people live within the boundaries of this region, concentrated mostly in Egypt, Palestine, Lebanon, the oasis of Damascus, and along the banks of the Tigris and the Euphrates. There are potentialities for agricultural development, especially by means of irrigation, that will be sufficient to support a much larger population.

The urban segment of the regional population is relatively small, not more than 8 million persons, living mostly in a few large centers. The great majority are the village dwellers, the people who cultivate the soil as owners, tenants, or sharecroppers. Another important segment of the population is made up of tribal groups, amounting to several million people and concentrated mainly in Arabia, the Sudan, Iraq, and Syria. Some of them are purely nomadic, and others are in various stages of settlement. These are the people who raise the bulk of the livestock. They also cultivate the soil on the side.

Agriculture a Way of Life

Agriculture as practiced by the people of the Middle East is much more than an occupation or an economic activity. It is in reality a highly integrated total way of life that is deeply rooted in centuries of tradition. It involves personal emotional expression, family ties, religious sentiment, social intercourse, and firmly established habits of behavior.

In the light of modern technology, agricultural practices in the Middle East appear to be completely outmoded. The threshing board, the hand sickle, the primitive chicken coop, the Biblical wooden plow, and the team of oxen are still much in evidence. However, a thorough appraisal of these and other practices will readily reveal that, at least in some aspects, many of them are efficiently adapted to the conditions of the local situation.

Agricultural production in the region consists in the first place of cereals. Wheat, barley, and grain sorghum are produced extensively in every one of these countries. Egypt leads in the production of corn and rice. Barley and grain sorghum are used mainly for animal feed, whereas the other cereals, including corn, are used for human consumption. Dry legumes, mostly beans and lentils, are grown all over the region. Production of potatoes is relatively limited. Vegetable oils are consumed extensively and are extracted mainly from cottonseed (Egypt and the Sudan), olives (Lebanon, Syria, and Palestine), and sesame. Fruits are abundant, consisting of dates, citrus, grapes, figs, apricots, melons, and others. Production of sugar from cane is virtually limited to Egypt.

The main exportable cash crops are cotton (Egypt), citrus (Palestine), and dates and barley (Iraq). Livestock consists mainly of fat-tailed sheep, goats, cattle, water buffalo, camels, and asses. As far as production for food consumption is concerned, the region as a whole is self-sufficient, with deficiencies occurring in Lebanon, Palestine, and Saudi Arabia, and with surpluses produced in Egypt, Iraq, and Trans-Jordan. Self-sufficiency is, however, relative to the standard of living prevailing in a country; the standard of living in the Middle East is in general very simple and low. The diet of the bulk of the population is deficient in meat, dairy products, and protective foods.

The Need for Agricultural Development

Obviously, the growth and prosperity of the Middle East depend primarily upon the development of its relatively primitive agriculture. It is the foundation of the region's total economy. About 80 percent of the people depend directly upon agriculture for a living. Practically all major exports from these countries are of agricultural origin. Before the war, citrus exports from Palestine amounted to about 78 percent of the value of that country's total exports. The same was more or less true of cotton in Egypt and dates in Iraq. Now drastic changes are likely to take place in world markets in the postwar period, and the dietary needs of the masses of the population will press for more diversified food production and the curtailment of cash crops. Under these circumstances, the governments of the Middle East will have to make drastic adjustments and aim at the development of new patterns of agricultural production and trade. This is the major problem, the solution of which will require expert knowledge in agricultural and economic research, experimentation, and demonstration.

Any plans for an expansion of the cultivated land and increase in production will depend to a large extent upon the development of schemes involving the conservation of moisture and the efficient utilization of subsoil water, running rivers, and streams for irrigation. Furthermore, modern agricultural machinery, including the tractor, the plow, and the combine, mostly of American origin, has already invaded the area. Expert help and guidance are needed in order to ensure more intensive but judicial use of such machinery. Otherwise soil depletion and erosion may result.

There is also need for reconstruction and development involving the following lines of action: Livestock breeding and seed selection, greater use of fertilizers and manures, national and regional programs of pest and disease control, programs of soil conservation, agricultural education and extension work, credit facilities to small farmers, and improvement of living conditions among the sharecroppers and tenants who constitute the majority of the farming population.

The Need for Social-Science Research

The rural life in the Middle East is highly stabilized and integrated. Agricultural activity is an integral part of a whole culture; it has to be approached, analyzed, and understood in the light of the whole. For example, the introduction of a new crop rotation is a question to be decided not by the individual farmer, but by the community as a whole. An agricultural cooperative may function best in some localities if established on the basis of the joint family system.

Consequently, a comprehensive program of agricultural development in the region, if it is to be enlightened and bring about permanent results, has to include a project of research in the field of social science. Knowledge in this field, as applied to the Middle East, is indeed limited.

Relations With the United States

Between 1880 and 1890 the people of the Middle East discovered America. Some came to the United States. They loved the country and stayed. Hundreds followed; then thousands. Since their settlement here, they have been in constant touch with their people in the old country, sending them money and giving them much of the American way of life. They helped establish schools in the old villages, where children were taught from American books. In recent years, when the movement for national freedom began to take a definite and active form in the various Arab countries, immigrants from those countries lent the movement their active support.

About 1850 American religious missions began a long career of extremely fruitful educational

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FOREIGN AGRICULTURE HALLY H. CONRAD, EDITOR

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work in Syria, Lebanon, and Palestine. Scores of elementary schools were established in the villages, where for the first time children came in contact with modern education. It was the American form of education, according to the American school curriculum. Later, high schools were established in central towns. Thousands of young people, boys and girls, flocked to these schools. This educational movement culminated in the development of three great American universities—in Cairo, Beirut, and Istanbul—which have since been beacons of enlightenment for the whole region.

Not only through education but also through trade, the historical vehicle of cultural contact and exchange between countries, the United States has developed common interests with the people of the Middle East. American industrial products and machinery have been in great demand in the markets of that part of the world. American automobiles of all makes have been rolling on the roads of those countries for the past 20 years. American radios are installed in many homes in the villages and towns of Lebanon and Syria, and American modern farm machinery is rapidly replacing the ancient plow on their plains.

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New Foreign Agriculture Studies

Three new Foreign Agriculture Reports have recently been issued by the Office of Foreign Agricultural Relations. Copies of these may be obtained upon application to the Division of Information and Statistics, Office of Foreign Agricultural Relations, U. S. Department of Agriculture, Washington 25, D. C.

Foreign Agriculture Report No. 16—

THE BRAZILIAN TOBACCO INDUSTRY, by Franklin S. Everts. 28 pp., illus. February 1947.

Brazil is one of the world's foremost producers of leaf tobacco, and Brazilian exports offer some, though largely indirect, competition to United States tobacco trade in world markets. Present heavy demand and favorable prices are stimulating expansion in Brazilian production, and the Government is encouraging the adoption of improved methods of cultivation, an increased use of fertilizer, and better grading and marketing practices to improve quality and to strengthen foreign demand.

Foreign Agriculture Report No. 17—

PICHILINGUE—A STUDY OF RURAL LIFE IN COASTAL ECUADOR, by Olen E. Leonard, 35 pp., illus. March 1947.

This study was made on a Government hacienda on the tropical coast of Ecuador. The selected information presented is directed toward helping agricultural technicians and others concerned with the development of intelligent and workable programs for improving the agriculture and raising the levels of living in rural areas. The text is generously illustrated by statistical tables and photographs.

Foreign Agriculture Report No. 18—

NORTH AMERICAN AGRO-CLIMATIC ANALOGUES OF PREWAR CZECHOSLOVAKIA, POLAND, AND CERTAIN AREAS OF EAST PRUSSIA, POMERANIA, G. M. POSEN, WEST PRUSSIA, BRANDENBURG, AND SILESIA, by M. Y. Nuttonson. 9 pp., illus. February 1947.

One of several studies dealing with North American agro-climatic analogues for various countries of the world. The purpose of such studies is to present an agronomic and horticultural ecological approach to problems attending the introduction and exchange of plant material. Detailed charts and a map of the region discussed accompany the text.

Other Foreign Agriculture Reports scheduled to appear in the near future include the following:

THE POSITION OF AMERICAN COTTON IN POLAND, by Fred Taylor.

FUTURE PROSPECTS FOR AMERICAN COTTON IN CZECHOSLOVAKIA, by Fred Taylor.

THE MEXICAN WINTER-VEGETABLE EXPORT INDUSTRY, by Mervin G. Smith.

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ERRATUM: See February issue of FOREIGN AGRICULTURE, p. 23. Figures in column 6, table 3—408.5, 10.1, 4.6, and 66.0—refer to shipments of bacon during 1945—not 1946. The corresponding figures in column 5 refer to 1944 shipments. Both sets should be included under the Fifth Agreement.

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